REMARKS

Applicant expresses appreciation to the Examiner for the interview conducted with applicant's representative. At the interview, new claims 23 and 24 were presented and proposed as replacing the independent claims that were previously of record. Accordingly, new claims 23 24 are presented for reconsideration. Amendments to various of the dependent claims have been made to make them consistent with the new independent claims, but otherwise the dependent claims have not been amended in response to any rejection on art. Accordingly, by this paper, independent claims 23 and 24, with depending claims 2, 4 – 11 and 14 – 16 are now pending and presented for reconsideration, and claims 1, 3, 12, 13 and 17 – 22 have been cancelled without prejudice.

As defined in the new independent claims, applicant's dental curing device is comprised of an elongated housing having a proximal end and a distal end, with a handle portion disposed between the proximal and distal ends. A light source is disposed at the distal end of the housing, and electronic circuitry is disposed within the handle portion of the housing for controlling the light source. A heat sink is disposed within the elongated housing for transferring heat generated by the light source away from the distal end and for dissipating the heat that is transferred away from the light source. The heat sink comprises a first elongated solid metallic portion having proximal and distal ends, with the distal end in thermal contact with the light source and extending from the light source through at least a portion of the elongated housing. The heat sink also comprises a second elongated portion comprised of a polymer-based material that is not electrically conductive, with the second portion in thermal contact with the first elongated solid metallic portion at its proximal end, and the second elongated portion extending through the handle portion of the housing and surrounding at least a portion of the electronic circuitry contained therein.[1]

As noted at the interview the claimed structure of applicant's heat sink for the dental curing device advantageously conducts heat quickly away from the light source by virtue of the elongated solid metallic first portion. The heat is then effectively dissipated by the elongated second portion, located in the handle. The elongated second portion of the heat sink can be placed in the handle and can surround the electronic circuitry because it is a polymer-based

[1] Independent claim 24 is similar to claim 23 and additionally adds an insulating layer that surrounds the first elongated solid metallic portion.

material that is not electrically conductive. This effectively improves the heat dissipation characteristics of the overall heat sink structure.

In the Office Action, the independent claims previously pending (e.g. claims 1, 17 and 21, now cancelled) were rejected under 35 U.S.C. § 103(a) as obvious in view of U. S. Patent Publication US 2002/0133970 (Gordon et al.). The depending claims were rejected as obvious over Gordon et al. as combined with either U. S. Patent Publication US 2003/0081430 (Becker)[2], or (cited as teaching the use of an insulating air gap between the heat sink and casing), or U. S. Patent No. 5,213,103 (Martin et al.) (cited as teaching epoxy-containing heat conducting particles).

As noted and discussed at the interview, Gordon et al. discloses two different embodiments of a heat sink for a dental curing device. In one of the embodiments (see Figs. 7 – 9) the dental curing device includes a thermally conductive heat transfer element 208 (Figs. 8 & 9). A heat sink 214 (Fig. 9) consists of a thermally conductive molded material such as an epoxy that surrounds heat transfer element 208 in the space between the heat transfer element 208 and outer tube 204.

As pointed out at the interview, this structure does not anticipate or make obvious applicant's heat sink structure, as claimed, which includes "a first elongated solid metallic portion having proximal and distal ends, with the distal end in thermal contact with the light source and extending from the light source through at least a portion of the elongated housing, and a second elongated portion comprised of a polymer-based material that is not electrically conductive, with the second portion in thermal contact with the first elongated solid metallic portion at its proximal end, and the second elongated portion extending through the handle portion of the housing and surrounding at least a portion of the electronic circuitry contained therein." Gordon et al.'s heat sink has the first portion or heat transfer element 208 surrounding the second or epoxy portion 214, all of which is contained in the outer tube 204 that is operatively used in the patient's mouth. No part of the heat sink in this embodiment is in the handle, but rather is located near the operative portion used in the mouth, which is not desirable

[2] Becker qualifies as "prior" art, if at all, under 35 U.S.C. § 1-2(a). Applicant reserves the right to challenge whether Becker is a proper qualifying reference, and thus any remarks or arguments in respect to Becker should be understood as being made simply assuming for purposes of the argument that Becker is a qualifying reference.

and contrary to applicant's device, which moves the heat away from the operative portion to the handle portion.

The second embodiment of Gordon et al. discloses (Fig. 10) as an alternative heat sink arrangement 314 which consists of a metal body joined to the opposite end of heat transfer element 208. As noted, nowhere does Gordon et al. teach that the structure of these embodiments is interchangeable. Indeed, the disclosure treats these embodiments as separate and distinct alternatives to one another, and any notion that one of skill in the art would logically be led to interchange the epoxy heat sink of Fig. 9 for the metal body 314 is born more out of hindsight reconstruction based on applicant's disclosure than anything contained by way of suggestion to do so taught by Gordon et al.

For at least the foregoing reasons, the claims are neither anticipated nor made obvious by Gordon et al., either singly or in combination with any other reference of record. Accordingly, favorable reconsideration is respectfully requested.

In the event the Examiner finds any remaining impediment to allowance that may be clarified through a telephone interview, the Examiner is requested to contact the undersigned attorney.

Dated this 28th day of November, 2005.

Respectfully submitted,

RICK D. NYDEGGER
Registration No. 28651
Attorney for Applicant
Customer No. 022913

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